AD-A068 026 AIR FORCE ENGINEERING TECHNOLOGY OFFICE TYNDALL AFB FL F/G 1/2
AN EVALUATION OF THE BIRD/AIRCRAFT STRIKE HAZARD DYESS AIR FORC--ETC(U)
SEP 78 J S KENT, A L BUDDIN

UNCLASSIFIED AFETO-TM-8-78 NL

| OF |
AD
A068026

END
DATE
FILMED
6-79
DDC

AFETO TM-8-78

LEVEL II

AN EVALUATION OF THE BIRD/AIRCRAFT STRIKE HAZARD DYESS AIR FORCE BASE, TEXAS

JAMES S. KENT, 1st LT, USAF
ARDRAH L. BUDDIN III, SSGT, USAF

SEPTEMBER 1978

AIR FORCE ENGINEERING TECHNOLOGY OFFICE
(AIR FORCE ENGINEERING AND SERVICES CENTER)
TYNDALL AIR FORCE BASE
FLORIDA 32403

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: AFETO-TM-8-78	2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE (and Subtitle): An Evaluation of the Bird/Aircraft Strike Hazard Dyess ~~AFB, Texas~~ Air Force Base, Texas,	5. TYPE OF REPORT & PERIOD COVERED
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): JAMES S. KENT, ~~[illegible] USAF~~; ARDRAH L. BUDDIN, III, ~~[illegible] USAF~~	8. CONTRACT OR GRANT NUMBER(s) 12 54 p.
9. PERFORMING ORGANIZATION NAME AND ADDRESS: AFETO/DEVN, Tyndall AFB FL 32403	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: JON: ~~00~~DEVN11
11. CONTROLLING OFFICE NAME AND ADDRESS: AFESC/DEVN, Tyndall AFB FL 32403	12. REPORT DATE: Sept~~[illegible]~~78
	13. NUMBER OF PAGES: 52
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report): UNCLASSIFIED
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)
Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES
Available in Defense Documentation Center

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Bird/Aircraft Strike Hazard
Bird Hazard Working Group
pest birds

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
The Air Force Engineering Technology Office's Bird/Aircraft Strike Hazard (BASH) Team surveyed Dyess AFB from 20 to 30 September 1978. During this period environmental factors which create potential bird strike hazards were observed. Specific recommendations based on observations are provided to reduce the bird strike hazard.

394 162

DD FORM 1 JAN 73 1473

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

PREFACE

This study was conducted under Program Element 91212F AFETO JON ØØDEVN11. Inclusive dates of the study were 20-30 September 1978.

This report has been reviewed by the Information Office (OI) and is releasable to the National Technical Information Service (NTIS). At NTIS it will be available to the general public, including foreign nations.

For your quick reference and use, a concise Summary of Observations and Recommendations follows the Table of Contents.

This memorandum has been reviewed and is approved for publication.

Jeffrey J. Short

JEFFREY J. SHORT, Capt, USAF
Chief, BASH Reduction Program

William M. Kornman

WILLIAM M. KORNMAN
Chief, Natural Resource Division

Sterling E. Schultz

STERLING E. SCHULTZ, Colonel, USAF
Director, Environmental Planning

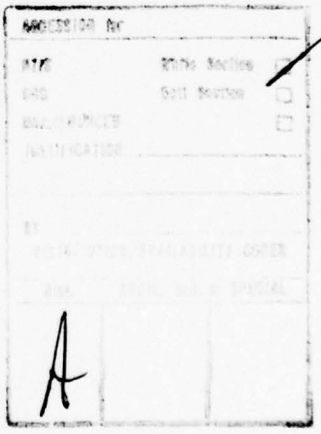


TABLE OF CONTENTS

SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

OBSERVATIONS:

1. A program to reduce bird strike hazards does not presently exist. This program is required by AFR 127-15.

2. The drainage ditch on the west side of the runway does not remove all standing water from the airfield. The heavy plant growth in these areas attracts several bird species.

3. The private sanitary landfill which services the base has been cited by the Texas Department of Health for improper operation. Gulls and other hazardous birds have been observed feeding at the landfill.

4. Large numbers of raptors (birds of prey) hunt in the airdrome environment. They present a potential severe bird strike hazard because of their size, slow flight and soaring habits.

5. A variety of small birds live on the airfield, particularly on the west side of the runway. These are particularly hazardous to T-38 aircraft.

6. Dyess AFB is on the western edge of the Central Flyway. Large flocks of ducks and geese migrate through the region each spring and fall.

7. Blackbirds migrate through the local area in large, trailing flocks each year. On-base vegetation and grain fields near the base attract the blackbirds.

8. Pigeons in Buildings 4314 and 5020 create a severe pest bird problem. An estimated 288 manhours are used each week to clean up bird droppings.

RECOMMENDATIONS:

1. A Bird Hazard Working Group should be formed to plan for reduction of bird strike potentials. The group, composed of representatives of Civil Engineering, Flying Safety, Flight Facilities and Airfield Management, could meet as part of the base's Air Traffic Control Board.

2. Clearing of the drainage ditch should be continued until complete.

3. After the present sanitary landfill is filled and closed, no new landfill operations should be permitted within 3,048 meters (10,000 feet) of the airfield.

4. Any dead animal on the airfield must be removed immediately to prevent attracting raptors. When raptors are observed by control tower personnel or pilots, the location of the birds should be relayed to other aircrews in the area so avoidance procedures can begin.

5. Grass on the west side of the runway should be cut to a height of 15 centimeters (6 inches). The cut area should extend to 100 meters (91 yards) from the runway edge.

6. Notices to Airmen, IFR Supplements for Transient Aircrews and Mishap Prevention Bulletins should be used to warn aircrews about migrating waterfowl.

7. Blackbirds can be reduced by eliminating standing water on the airfield. When large flocks of blackbirds cross the runway, aircraft departures and landing should be stopped until the birds are out of the way.

8. A pigeon control program should be started. Manhours spent must be documented to justify cost-effective control measures. Control programs could include physical or chemical exclusion of birds from the hangars, trapping or shooting the birds.

SECTION I

INTRODUCTION

Dyess Air Force base is a Strategic Air Command installation located in west central Texas 11.3 kilometers (7 miles) from the city of Abilene (Reference 1). Dyess AFB is home for the 96th Bombardment Wing (BMW). The 463rd Tactical Airlift Wing under the Military Airlift Command is a tenant unit on the base. Aircraft using the base include the B-52D, the KC-135, the T-38, and the C-130. The mission of the 96 BMW is to develop and maintain the capability for strategic warfare. Operationally, the 96 BMW is responsible for proper planning, programming and effective management of activities providing for aircraft operational training effectiveness, control of aircrews combat readiness.

Dyess AFB is a part of the Osage Plains, located roughly between the Semi-arid climate to the west and north and the humid climate of eastern Texas at an altitude of 1789 feet above sea level. Average annual precipitation is 63.5 centimeters (25 inches). The base occupies 2099 hectares (5186 acres), nearly half of which are undeveloped. Although mesquite (Prosopis glandulosa) is the dominant tree of the region, and King ranch blue stem (Andropogon ischaemun) is the dominant grass on the airfield, a wide variety of plants grow on the base (Appendix A). Several species of reptiles, amphibians, mammals and birds live on the airfield. Coyotes (Canis latrans) are the largest predators in the area, and black-tailed jack-rabbits (Lepus californicas) are the most visible mammals on the base. Raptors (birds of prey) and perching birds are common to the region, while migrating waterfowl and gulls pass over the base each spring and fall (Appendix B). Birds of North America was used to identify all birds observed during the survey (Reference 2).

The airdrome bird strike hazard at Dyess AFB is not severe. Bird strikes to aircraft using Dyess AFB have produced $8,090.05 in damage during 1977 and 1978 (Appendix C). Four bird strikes have occurred in the airdrome environment since 1977, but none were reportable (reportable bird strikes are those costing more than $250 to repair). Potential bird strike hazards do exist from both resident and migrating birds. Pigeons (Columba livia) in aircraft hangars create a severe pest bird problem. This report recommends ways to minimize bird strike hazards and solve pest bird problems.

SECTION II

OBSERVATIONS AND RECOMMENDATIONS

Recommendations for each observation in this report are listed in order of priority. If lack of manpower or funds postpones implementation of some recommendations, subsequent recommendations should then be accomplished with a return to delayed recommendations when resources are available.

A. BIRD HAZARD WORKING GROUP

Air Force Regulation 127-15 requires a bird hazard program be established to define responsibilities, set up procedures for bird control, reduce bird strike potential and distribute information. No such program exists at Dyess AFB.

Recommendations:

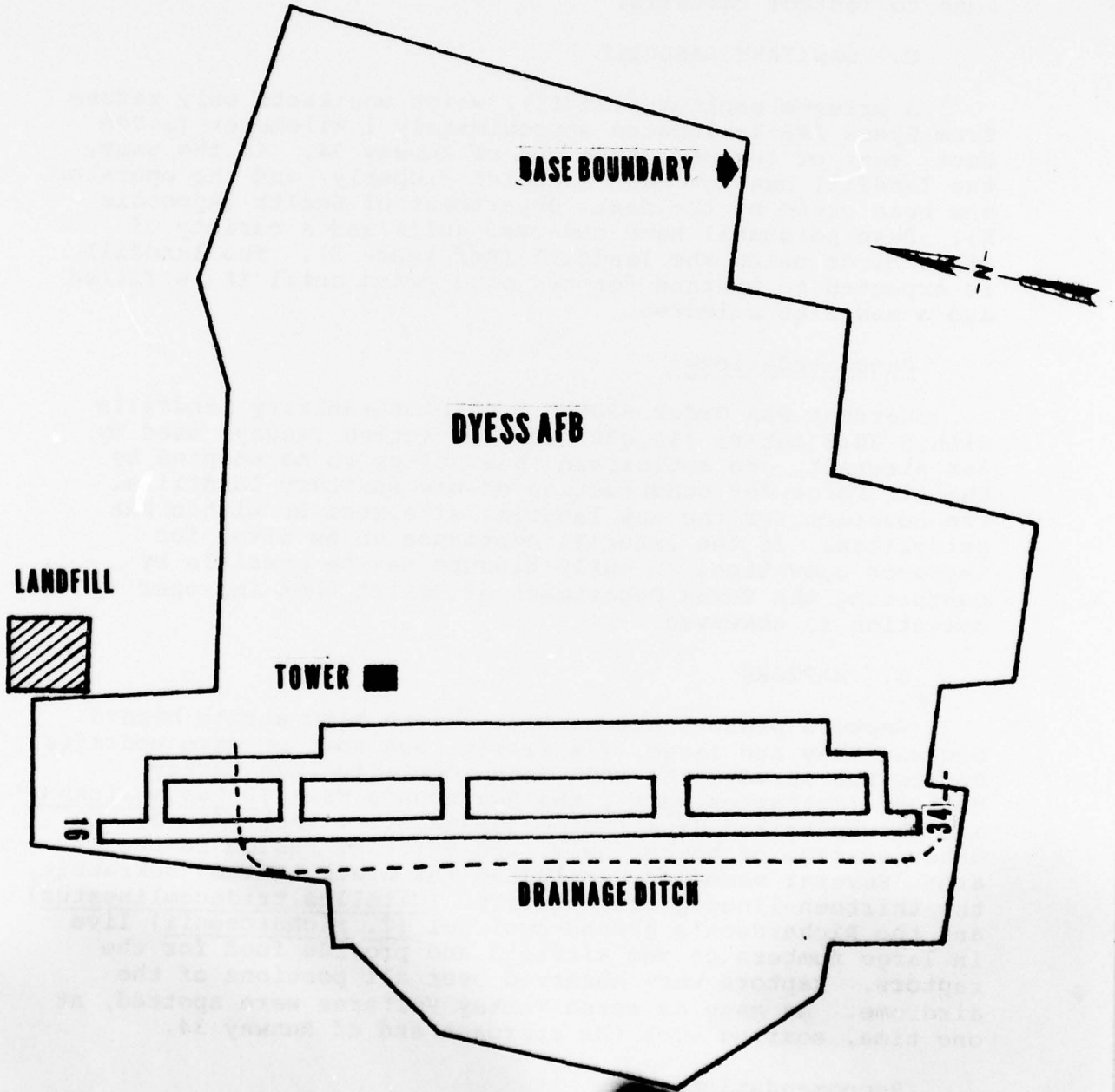
A Bird Hazard Working Group should be formed which should include Flying Safety, Civil Engineering, Airfield Management and Flight Facilities representatives. This group will develop plans and procedures and delineate responsibilities for bird control. The group will also notify and inform pilots about bird hazards and coordinate operational changes to reduce bird strike potentials. The group should meet on a regular basis and may function as a part of the base's Air Traffic Control Board. A control plan that has been successful for another base is provided as an example (Appendix D).

B. STANDING WATER

A drainage ditch on the north, west and south sides of the runway removes rain water from the airfield (Figure 1). Standing water which attracts birds exists on various portions of the airfield, particularly on the west side of the runway near midfield. The drainage ditch is choked with cattails (Typhus sp.) and various other weeds. This dense growth attracts blackbirds and other bird species. The ditch is being cleared and graded to provide better drainage. Work has been confined to the north portion of the airfield.

Recommendations:

Clearing of the drainage ditch should be continued until completed. This will help reduce standing water and eliminate habitats for many of the hazardous birds. The airfield should be carefully observed by Civil Engineering personnel following rains. Where standing water still exists, fill should be added


BASE BOUNDARY
N
DYESS AFB
LANDFILL
TOWER
16
34
DRAINAGE DITCH

re 1

and graded until all such areas are eliminated. Cattails should be eliminated from the ditches to provide better drainage and reduce the bird attractant. Dalapon herbicide, NSN 6840-00-577-4202, should be applied in strict accordance with Environmental Protection Agency approved label instructions to control cattails.

C. SANITARY LANDFILL

A private sanitary landfill which contracts only refuse from Dyess AFB is located approximately 1 kilometer (3,000 feet) east of the departure end of Runway 34. In the past, the landfill has not been operated properly, and the operator has been cited by the Texas Department of Health (Appendix E). Base personnel have observed gulls and a variety of other birds using the landfill (Reference 3). The landfill is expected to operate for ten more years until it is filled and a new site selected.

Recommendations:

Current FAA Order 5200.5 prohibits sanitary landfills within 3048 meters (10,000 feet) of active runways used by jet aircraft. We anticipate this policy to be adopted by the Air Force for construction of new sanitary landfills. The contract for the new landfill site must be within FAA guidelines. If the landfill continues to be sited for improper operation, an early closure may be possible by contacting the Texas Department of Health when improper operation is observed.

D. RAPTORS

Raptors present a potential severe bird strike hazard because they are large, fly slowly, and soar on warm updrafts. During the survey, the BASH Team identified the Turkey Vulture (Cathartes aura), the Swainson's Hawk (Buteo swainsoni) and the Redtailed Hawk (Buteo jamaicensis) (Appendix B). Other species of hawks, owls, and vultures reside in the area. Several mammals, including the black-tailed jackrabbit, the thirteen-lined ground squirrel (Citellus tridecemlineatus) and the Richardson's ground squirrel (C. richardsonii) live in large numbers on the airfield and provide food for the raptors. Raptors were observed over all portions of the airdrome. As many as seven Turkey Vultures were spotted, at one time, soaring over the approach end of Runway 34.

Recommendations:

Because of their protected status, elimination of raptors is not feasible. Large number of raptors in the local area makes live trapping and relocation an unreasonable

solution to the hazard. Dead animals on the airfield will attract raptors to the area. The runway and taxiways should be patrolled frequently, and all dead animals removed immediately. Control tower personnel should watch for raptors and report their location to pilots in the local area. When pilots see birds, they should give the location to the control tower so this information can be relayed to other aircrews.

E. SMALL LOCAL BIRDS

The grassy land near the airfield provides habitat for a variety of small birds. These birds pose a hazard primarily to T-38 aircraft. Species observed during the survey included the Western Meadowlark (Sturnella neglecta), the Lark Sparrow (Chondestes grammacus), the Scissor-tailed Flycatcher (Muscivora forficata, the Loggerhead Shrike (Lanius ludovicianus) and the Mourning Dove (Zenaidura macroura) (Appendix B). These small birds feed on insects and seeds, mostly in the taller grasses away from runways and taxiways. The largest number of birds was observed on the west side of the runway. Several years ago the majority of the airfield was mowed regularly, but the thick grass and mesquite are now growing close to the runway's edge on the west side (Reference 4). Presently, grass is mowed to about 40 meters from the west edge of the runway.

Recommendations:

To prevent development of a bird hazard, grass should be kept short near the runway and taxiways. The west side of the runway should be mowed out 80 to 100 meters from the runway's edge and kept 15 centimeters or shorter in height. The short grass height will reduce seed production which furnishes food for some birds. The mowing should be accomplished soon to prevent mesquite from growing too large to be cut by mowers.

F. WATERFOWL

Dyess AFB is on the western edge of the Central Flyway. Large flocks of ducks and geese migrate through the region in spring and fall. A flock of migrating geese was observed flying over the base during the BASH survey, and ducks have been observed by base personnel in the drainage ditch on the airfield (Reference 5). Because of limited water, few ducks or geese stay in the area, and migrating birds create the greatest hazard. Major periods of migration are October to November and March to April (Reference 6).

Recommendations:

Nothing can be done to effectively control migrating waterfowl. If pilots are informed of heavy bird concentrations in the area, bird strikes may be avoided. Notices to Airmen (NOTAMS), Mishap Prevention Bulletins (MPB), and Instrument Flying Rules Supplements for transient aircrews are useful tools for spreading bird hazard information. When control tower personnel see birds flying over the airfield, pilots in the local area should be alerted.

G. BLACKBIRDS

Flocks of Red-winged Blackbirds (Agelaius phoeniceus) were feeding in sorghum fields south and west of the base during the survey. Blackbirds were also observed in the weeds in the drainage ditch. During migration, large trailing flocks of these birds present a hazard to aircraft.

Recommendations:

Control of migrating flocks of blackbirds is not feasible. The number of blackbirds that stay in the area can be reduced by draining standing water and by clearing the drainage ditch. These actions were discussed earlier in this report. When large flocks of migrating blackbirds are observed flying over the runway, control tower personnel should delay aircraft departures and arrivals until the flock has passed over the airfield.

H. PEST BIRDS

Domestic pigeons cause health hazards, equipment damage and wasted manhours, particularly in Buildings 5020 and 4313. Fifty to one hundred birds roost in each building at any given time. During the survey, the birds flew out of the buildings each day to feed in fields south of the base. The unsightly droppings left by pigeons result in a poor working environment. Unsanitary conditions are created by bird droppings which are related to certain diseases such as salmonellosis, cryptococcois and psittacosis. Uric acid in bird droppings corrodes equipment and aircraft in the two hangars. In Building 4314 plastic covers must be kept over equipment and replaced twice each month to provide protection from bird droppings. Although manhours expended in cleaning up bird droppings are not recorded, nearly 300 manhours are lost each week cleaning up bird droppings (Reference 7). Bird control in the hangars is the responsibility of the Civil Engineering Entomology Shop. Currently, baits treated with Avitrol and placed in hangar superstructures are the only control measure used for pigeons. Because pigeons feed very little in the hangars, poison baits are not effective. Pigeons were shot by hangar personnel inside the hangars, but discharging firearms inside the buildings voids roof

guarantees, so the practice was stopped.

Recommendations:

To establish a control program for pigeons, the extent of the problem must be documented to justify cost-effective controls. Documentation includes the number of manhours wasted cleaning up bird droppings, the amount of equipment damaged by bird droppings and the potential for disease and health hazards associated with bird excrement. Hospital personnel should be made aware of the potential for bird related diseases so accurate diagnoses can be documented. Several control programs are available to reduce the problem.

1. The most effective and permanent solution to the pigeon problem is exclusion of the birds from the hangar superstructure. It is not feasible to keep all doors to the hangars closed. However, two methods have been effective in keeping birds from roosting in large buildings. The most permanent solution to the problem is a plastic netting used to create a false ceiling close to hangar superstructures. The netting denies birds access to roosting perches. Tests are currently underway to find acceptable plastic netting for Air Force use. Several chemical repellents are available which can be spread on the hangar superstructures. These chemicals resemble a sticky gell and give birds a chemical "hot foot". One of the chemicals, Roost-No-More, has a national stock number, NSN 6840-559-1550. Other chemical repellents are available and are currently being tested. Both physical exclusion and chemical repellents are expensive programs and must be justified on a cost-effective basis by manhour documentation.

2. The most practical short-term solution to the problem is a trapping program to be carried out by either the Entomology Shop or hangar personnel. Plans for construction of these traps are included in this report (Appendix F). Pigeons perch on hangar roofs, making these locations ideal trapping areas. Before trapping, the birds should be pre-baited with corn for at least two weeks. Every morning fresh bait should be placed near traps, but not inside them. Remove excess grain not consumed each day. After the pigeons begin feeding heavily in the area, place corn and water inside the trap. Remove trapped birds early in the morning and late in the afternoon and add fresh bait and water. Remove any bait not consumed from the previous day. Leave one or two healthy birds in the trap each day to act as decoys. Continue the trapping operations until there is no longer a significant number of birds being caught. Dispose of birds as directed by the base veterinarian. Pigeons are

not protected species and any humane method of disposal is legal. Trapping must be an ongoing operation. As pigeon numbers are reduced, other pigeons from the surrounding community will eventually come to the hangars. Although trapping requires considerable time, the potential savings of manhours involved in cleanup operations make the program worthwhile.

3. Pigeon numbers can be reduced by chasing the birds from the hangars and shooting them with shotguns as they fly out of the buildings. Number 6 or 8 bird shot should be used. This program creates safety problems, and considerable planning and coordination are necessary before using this method of pigeon control. Carried out over several days, shooting the birds will effectively reduce the pigeon numbers. However, this is not a permanent solution. New pigeons will replace those shot, and the population will grow back to its original size.

4. Several methods of bird control have been tried without success. Each method may be effective for a few days, but pigeons soon become habituated, do not respond, and the techniques become useless. Stuffed owls, rotating and flashing lights, rubber snakes and various sounds are examples of some ineffective techniques. Before any method is tried, the BASH team should be consulted.

REFERENCES

1. United States Air Force, 96 Combat Support Group, Tab A-1 Environmental Narrative, Dyess Air Force Base, Texas, 1975.

2. Robbins, Chandler S., Bertel Bruun, and Herbert S. Zim, A Guide to Field Identification: Birds of North America, Golden Press, New York, 1966.

3. Ball, Floyd R., Chief of Engineering and Environmental Planning, 96 Civil Engineering Squadron, Dyess AFB, TX., personal communication, September 1978.

4. Einsel, Willis E., Lt Col, Chief of Airfield Management, 96 Combat Support Group, Dyess AFB, TX., personal communication, September 1978.

5. Dominque, Edward N., 1Lt, Civil Engineering Officer, 96 Civil Engineering Squadron, Dyess AFB, TX., personal communication, September 1978.

6. Newman, Dr. George, Ornithologist, Hardin-Simmons University, Abilene, Texas, personal communication, September 1978.

7. Hart, Wayne, MSgt, NCOIC, parachute Shop, 1 MAPS: Lewis, James L., MSgt, Inspection Branch Docks Chief, 463 OMS; Robert, TSgt, NCOIC, Tanker Phase, 96 OMS; Tatum, Carlos V., CMS, NCOIC, Terminal Services, 1 MAPS, (personal communications), Dyess Air Force Base, Texas, September 1978.

APPENDIX A

Plants Found on Dyess AFB
Tab A-1, Environmental Narrative

GRASSES

Common Name	Scientific Name
King Ranch Blue Stem	Andropogon ischaemum
Buffalo Grass	Buchloe dastyloides
Blue Grama	Boutleloua gracilis
Common Bermuda	Cynodon dactylon
Sand Dropseed	Sporobolus cryptandrus
Johnson Grass	Sorghum halepense

WEEDS

Common Name	Scientific Name
Western Ragweed	Ambrosia psilostachys
Purple Night Shade	Solanum cleagonifolium
Texas Fillaree	Eroduns citcutarium teanum
Broomweed	Gutierrezia dracynculoides
False Corepposis Green Threads	Thelesperms trifidium
Sunflower	Helianthus annus
Tumbleweed	Amaranthus albus

TREES

Common Name	Scientific Name
Mesquite	Prosopis glandulosa
American Elm	Ulmus americana
Cedar Elm	Ulmus crassifolia
Hackberry	Celtis occidentalis
Willow	Salix nigra
Live Oak	Quercus virginiana

APPENDIX B

Birds Identified During the Bird/Aircraft Strike Hazard Survey Dyess AFB 20-30 September 1978

Common Name	Scientific Name
Redtailed Hawk	*Buteo jamaicensis*
Swainson's Hawk	*Buteo swainsoni*
Turkey Vulture	*Cathartes aura*
Rock Dove	*Columba livia*
Mourning Dove	*Zenaidura macroura*
Red-shafted Flicker	*Colaptes cafer*
Barn Swallow	*Hirundo rustica*
Loggerhead Shrike	*Lanius ludovicianus*
Western Meadowlark	*Sturnella neglecta*
Red-winged Blackbird	*Agelaius phoeniceus*
Lark Sparrow	*Chondestes grammacus*
House Sparrow	*Passer domesticus*
Scissor-tailed Flycatcher	*Muscivora forficata*
Killdeer	*Charadrius vociferus*
Starling	*Sturnus vulgaris*
Cactus Wren	*Campylorhynchus brunneicapillus*
Mockingbird	*Mimus polyglottos*
Bobwhite	*Colinus virginianus*

APPENDIX C

BIRD STRIKE REPORT FOR DYESS AFB

Date	Time	Aircraft	Phase of Flight	Altitude	Bird Species	Location	Remarks
MAR 76	1530	B-52D	Low level	800 AGL	Pheasant	Pilot's Window	
AUG 76	1421	KC-135	Departure	50 AGL	Unk	Radome	
SEP 76	1522	KC-135	Short Final	100 AGL	Unk	Right wing leading edge	
AUG 77	1120	B-52D	Departure	1200 AGL	Starlings(?)	Radome	
SEP 77	1130	B-52D	Low Level	800 AGL	Unk	Radome	
SEP 77	1220	T-37	Short Final	100 AGL	Chicken Hawk	Left gear	
SEP 77	Unk	B-52D	Traffic Pattern	4000 MSL	Unk	#3 Pad	
FEB 78	Unk	B-52D	Low Level	800 AGL	Small, Unk	#5 Ring Cowl	
MAR 78	Unk	B-52D	Low Level	750 AGL	Duck (?)	Radome	
MAY 78	2308	B-52D	Low Level	2200 AGL	Numerous Unk	#3 Engine	
JUN 78	1445	C-130	Take Off	200 AGL	Unk	Left side, Radome	
AUG 78	Unk	B-52D	Unk	Unk	Unk	Unk	
AUG 78	1400	C-130	Low Level Route	2000 AGL	Unk	Radome	

LAUGHLIN AFB

BIRDSTRIKE HAZARD PLAN

LAFB PLAN 706

LAUGHLIN AFB, TEXAS

23 APRIL 1976

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 47TH FLYING TRAINING WING (ATC)
LAUGHLIN AIR FORCE BASE, TEXAS 78840

REPLY TO ATTN OF: XP

23 April 1976

SUBJECT: Laughlin AFB Birdstrike Hazard Plan 706

TO: See Distribution - Annex Z

1. Attached is Laughlin AFB Birdstrike Hazard Plan 706.

2. This plan is effective for planning on receipt and for continuous implementation.

3. The OPR for this plan is the Plans Division/XP. Address distribution additions and deletions to this office.

4. This plan supersedes Laughlin AFB Birdstrike Hazard Plan, dated 10 July 1974, which should be removed from your files and destroyed.

FOR THE COMMANDER

ROBERT M. GIRARD, Major, USAF
Chief, Plans Division

1 Atch
LAFB Plan 706

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

SECURITY INSTRUCTIONS

1. The long title of this plan is Laughlin AFB Birdstrike Hazard Plan 706. The short title is LAFB Plan 706. Both titles are unclassified.

2. This document is unclassified.

3. The office of origin is the Plans Division/XP. Comments or recommendations concerning this plan should be addressed to this office.

RECORD OF CHANGES AND/OR CORRECTIONS

BASIC DOCUMENT	DATE OF BASIC
Laughlin AFB Birdstrike Hazard Plan 706	23 April 1976

CHANGE, LETTER OR MESSAGE NUMBER AND DATE	DATE COMPLETED	ENTERED BY (Signature and Grade)	OFFICE SYMBOL

ATC FORM NOV 72 192 PREVIOUS EDITION ARE OBSOLETE.

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

PLAN SUMMARY

1. PURPOSE. Provides guidance in eliminating, to the extent possible, the birdstrike hazard at Laughlin AFB/Eagle Pass Auxiliary by controlling conditions which attract birds. Establishes procedures for detections, reporting, dissemination and avoidance of bird concentrations.

2. CONDITIONS FOR IMPLEMENTATION. This plan is in continuous operation under the direction of the Deputy Commander for Operations.

3. OPERATIONS TO BE CONDUCTED:

a. Deployment. Not applicable.

b. Employment. The Base Civil Engineer has the responsibility of controlling the habitation which attracts birds. Operations will alter/discontinue flying operations to avoid times and/or areas of high risk. Safety provides safety inspections of base facilities, and brief aircrews on bird hazards.

c. Supporting Plans. Deputy Commander for Operations will maintain checklists for use when bird hazards are deemed significant.

4. COMMAND RELATIONSHIP. The Wing Commander meets quarterly with the Commanders of the tasked organizations to analyze the local bird situation, past and future (ref para 3b(7)).

5. MAINTENANCE APPRAISAL. Maintenance will preserve bird remains from birdstrikes for identification.

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

LAFB BIRDSTRIKE HAZARD PLAN 706
TABLE OF CONTENTS

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

LAUGHLIN AFB BIRDSTRIKE HAZARD PLAN 706
BASIC PLAN

REFERENCES:

AFR 28-3, USAF Operation Planning Process

AFM 85-6, Land Management and Grounds Maintenance

AFR 127-4, Investigating and Reporting U.S. Air Force Mishaps (PA)

ATCR 127-8, Birdstrike Hazards

ATCR 127-13, Aircraft Accident Prevention Program

TASK ORGANIZATIONS: See Annex A

1. SITUATION: Laughlin AFB, Eagle Pass Auxiliary (POORBOY) and the associated local flying areas are located on the western edge of the Central Bird Migratory Flyway. The annual migration of various species and the concentration of non-migratory type birds, particularly the raptorial species, on and around the airfield, provides a continual hazard of birdstrikes. Birdstrikes have occurred during all phases of flight, however, the greatest potential exists in the immediate vicinity of the airfields during the most critical phases of flight.

2. MISSION: To eliminate to the extent possible the birdstrike hazard at Laughlin AFB/Eagle Pass Auxiliary by controlling the conditions which attract birds. To establish procedures for detections, reporting, dissemination and avoidance of bird concentrations.

3. EXECUTION:

a. Concept of Operations. There are three distinct methods of reducing the birdstrike hazard.

(1) Control of the habitation which attracts birds.

(a) Reduction of food supply by frequent mowing to destroy seed producing weeds and legumes in the airfield cover; frequent spraying of the entire airfield with insecticides, especially after rain, to reduce the number of insects; a continuing rodent control program, and timely removal of dead animals.

(b) Reduction of roosting and nesting areas by completely removing trees, shrubs and brush and other non-essential habitats in the airfield areas that normally are utilized by birds involved in birdstrikes.

(c) Reduce water supply by leveling or draining of all standing water from airfield areas to the maximum extent possible.

(2) Alteration of the aircraft flying schedule and flight patterns to avoid times and/or areas of high risk. Training schedules will be either postponed or cancelled when bird concentrations threaten flight safety.

(a) Low level routes are planned to avoid known bird concentrations.

(b) Migratory birds create a problem primarily due to their heavy concentration. Training areas and routes may be closed or modified depending upon the location and types of birds. Refer to Annex O for time of migrations and types of migrating birds.

(3) Report bird sightings which could create a potential birdstrike hazard.

(a) When airborne, aircrews report potential birdstrike hazards to the controlling agency and to the Supervisor of Flying (SOF). The controlling agency disseminates reports of bird hazards until the hazard no longer exists.

(b) Concentration of birds on the airfield are reported to Base Operations and the Supervisor of Flying.

(c) During flying activities at POORBOY, aircrews report bird sightings to the RSU. When a potential birdstrike hazard exists the RSU controller suspends operations immediately and advises the 85th FTS Supervisor of Flying.

b. Tasks:

(1) Deputy Commander for Operations will:

(a) Develop and maintain Annex C.

(b) Maintain checklists for use when bird hazards are deemed signigicant.

(c) Maintain procedures for determining hazardous bird activity and altering/discontinuing flying operations at Laughlin AFB airfield and POORBOY as necessary to include:

1. Methods of locating and extent of bird hazard.

2. Shutdown of operations due to bird concentrations.

3. Discontinue touch-and-go landing.

4. Straight through initial or full stop landings.

5. Adjust pattern altitude to minimize exposure of aircraft.

6. Closing of POORBOY due to bird concentration.

(d) Ensure that transient aircrew members are briefed on bird hazards prior to departure.

(e) Ensure that assigned/attached aircrews are briefed at least monthly concerning birdstrike hazards, reporting procedures and collision avoidance procedures.

(2) Safety Division will:

(a) Develope and maintain Annex N.

(b) Conduct safety inspections of base facilities to include identification of specific areas of bird hazards. Notify DE and DO of these areas.

(c) Brief aircrews on the local bird hazards.

(d) Be responsible for the meeting as required in ATCR 127-8 and this plan; record the minutes and disseminate to board members listed in Para 3b(7).

(e) Report birdstrikes IAW AFR 127-4, and monitor bird species involved in bird-aircraft strikes to ensure bird control measures cover all bird hazards in the area.

(3) Base Civil Engineering will:

(a) Develope and maintain Annex O.

(b) Identify bird population as to:

1. Species of birds and the time period present in specific location.

2. Severity of problems posed by each specie.

3. Attractants to area.

4. Migratory routes, and periods of migration for each specie.

(c) Develop detailed procedures for removing as many attractants as possible to include:

1. Reduction of Food Supply: Frequent mowing of grass and weeds to destroy seed producing weeds in airfield cover. Spray with insecticides to reduce the number of insects; maintain a rodent control program; and remove dead animals.

2. Reduce roosting and nesting areas; Remove trees, shrubs and brush to discourage birds from habitating in the flight area.

3. Reduce water supply: Drain all non-essential standing water. Inspect areas of construction, and fill in all "pot holes" or other areas that might retain water.

(4) 2108 Communications Squadron ensures that reports of bird hazards are disseminated to aircrews transient and local, in the vicinity of the hazard.

(5) The Chief, Airfield Management ensures that bird concentrations and dead animals reported on, or in the vicinity of, the airfield are reported to the Civil Engineering Sanitation Section (DEMY) Ext 2214/2163.

(6) Deputy Commander for Maintenance ensures that evidence of bird remains from birdstrikes are preserved for evidence.

(7) The Wing Commander meets quarterly with the Deputy Commander for Operations (DO), Deputy Commander for Maintenance (MA), Chief of Civil Engineering (DE), Chief of Safety (SE), Chief Operations Division (DOO), Commanders 85th and 86th Flying Training Squadrons (DOT, DOF), Chief of Airfield Management (DOOB), and Commander, 2108 Comm Squadron to analyze the local bird situation, past and future. Meetings will be held in the months of January, April, July, and October and will include:

(a) Updating previous months' data for future use. Analyze the predicted data and effectiveness of the overall plan.

(b) Review predicted activity for coming months and action required to minimize hazards. Aircrews will be briefed on the hazards as determined for the coming months.

4. LOGISTICS AND ADMINISTRATION: Normal.

5. COMMAND AND CONTROL:

a. Command. This plan is in continuous operation under the direction of the Deputy Commander for Operations.

b. Control. Normal communication facilities will be used.

LAWRENCE D. GARRISON, Colonel, USAF
Commander

ANNEXES
A - Task Organizations
C - Operations
N - Safety Division
O - Civil Engineering
Z - Distribution

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

ANNEX A
TASK ORGANIZATIONS

Commander, 47th Flying Training Wing

Deputy Commander for Operations
- Chief, Operations Division
  - Chief, Airfield Management
- Chief, Standardization/Evaluation
- Commander, 85th Flying Training Squadron
- Commander, 86th Flying Training Squadron

Safety Division

Civil Engineering Division

2108 Communications Squadron

Deputy Commander for Maintenance

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

ANNEX C
OPERATIONS

REFERENCES: See Basic Plan

1. GENERAL:

a. Purpose: To provide guidelines for actions required when birds become a flight safety hazard.

b. Mission. See Basic Plan

c. Area of Operations: Laughlin AFB, POORBOY and the local flying area.

2. CONDUCT OF OPERATIONS: A checklist has been developed for use when bird hazards are deemed significant. These checklists are readily accessible to RSU controllers, Supervisors of Flying (SOF), and Tower controllers. The checklist will be maintained by the Wing RSUTSO. If the controller determines that birds on or in the vicinity of the airfield constitute a significant safety hazard to pattern and landing practices, the following procedures are recommended as a guide.

a. Procedures at Laughlin:

(1) Consult with SOF.

(2) Location and extent of the hazard will dictate appropriate action.

(3) If appropriate, take the following action:

(a) Discontinue touch-and-go landings and initial takeoffs.

(b) Full stop aircraft with low fuel.

(c) Send remaining traffic straight through on initial while SOF determines advisability of diversion.

(4) Adjust altitude/ground track as necessary to minimize exposure of aircraft to the hazard.

OPR: DO
23 April 1976
ORIGINAL

b. Procedures at POORBOY:

(1) POORBOY RSU controllers will conduct a daily inspection of the airfield to determine:

(a) If height of grass is greater than 20 inches.

(b) Abnormal concentration of birds and types, if known.

(c) Abnormal concentration of insects and types, if known.

This information will be reported to the SOF by exception only. The SOF will notify Base Operations, who will then report this problem to the Civil Engineering Service Call Desk.

(2) Discontinue landing practice and direct all aircraft to depart the pattern in sequence.

(3) Adjust pattern altitude and/or ground tract as necessary to prevent unnecessary exposure of aircraft to the hazard.

(4) Advise SOF and RAPCON that POORBOY is closed.

c. General Procedures:

(1) Keep all aircraft advised of bird concentration as seen from RSU or reported by pilots. Advise Tower and RAPCON.

(2) After a shutdown for birds, normal operation may be resumed after obtaining SOF approval.

(3) Any situation in the runway environment that might lead to increased bird activity should be reported to Base Operations.

(4) The SOF will advise Base Operations of a bird hazard, and Base Operations will notify Civil Engineering Entomology Section through the Service Call Desk.

(5) All flying adjustments made as a result of bird hazards will be noted in the appropriate SOF logs.

3. LOGISTICS AND ADMINISTRATION: Normal

4. COMMAND AND CONTROL:

a. Command. This plan is in continuous operation under the direction of the Deputy Commander for Operations.

b. Control. Normal communication facilities will be used.

FORREST E. KISSINGER, Colonel, USAF
Deputy Commander for Operations

APPENDIX
1 - Checklist for Bird Hazard in Traffic Pattern

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

APPENDIX 1, ANNEX C
CHECKLIST FOR BIRD HAZARD IN TRAFFIC PATTERN

If the controller determines that birds on or in the vicinity of the airfield constitute a significant safety hazard to pattern and landing practice, the following procedures are recommended as a guide:

POORBOY:

1. Discontinue landing practice and direct all aircraft to depart the pattern in sequence.

2. Adjust pattern altitude/ground track to prevent unnecessary exposure of aircraft to the hazard.

3. Advise SOF and RAPCON that POORBOY is close.

LAUGHLIN:

1. Consult with SOF.

2. Location and extent of the hazard will dictate appropriate action.

3. If appropriate, take the following action:

    a. Discontinue touch-and-go landings and initial takeoffs.

    b. Full stop aircraft with low fuel.

    c. Send remaining traffic straight through on initial while SOF determines advisability of diversion.

4. Adjust pattern altitude/ground track to minimize exposure of aircraft to the hazard.

GENERAL:

1. Keep all aircraft advised of bird concentrations as seen from RSU or reported by pilots. Advise Tower and RAPCON.

2. After a shutdown for birds, normal operation may be resumed after obtaining SOF approval.

3. Any situation in the runway environment that might lead to increased bird activity should be reported to Base Operations.

4. The SOF will advise Base Operations of a bird hazard, and Base Operations will notify Civil Engineering Entomology section through the Service Call Desk.

5. All flying adjustments made as a result of bird hazards will be noted in the appropriate SOF logs.

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

ANNEX N
SAFETY

REFERENCES: See Basic Plan

1. GENERAL:

a. Purpose. To prevent aircraft mishaps due to birdstrikes.

b. Mission. See Basic Plan

c. Area of Operations: Laughlin AFB, POORBOY, and the local flying ares.

2. CONCEPT OF OPERATIONS: See Basic Plan

3. CONDUCT OF OPERATIONS:

a. The Wing Safety Division will:

(1) Inspect the Laughlin AFB runway environment on a weekly basis. Results of inspections will be provided for the bird control meeting required by paragraph 3b(7) basic plan.

(2) Ensure that the training squadrons conduct birdstrike briefings for new aircrews. Birdstrike briefings and notices are provided by Safety on a recurring basis, prior to and during peak bird activity periods.

(3) Conduct the quarterly bird control meeting using inputs provided by inspections, individual reports, and past occurrences.

(4) Report all known birdstrikes with damage IAW AFR 127-4. Report precautionary landings or inflight emergencies that result from known or suspected birdstrikes on ATC Form 645-4.

4. LOGISTICS AND ADMINISTRATION: Normal

T. COMMAND AND CONTROL: See Basic Plan

John E. Click

JOHN E. CLICK, Major, USAF
Chief, Safety Division

OPR: LAFB/SE
23 April 1976
ORIGINAL

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

ANNEX O
CIVIL ENGINEERING

REFERENCES: See Basic Plan

1. SITUATION: See Basic Plan

2. MISSION:

a. To identify bird populations that present a hazard to aircraft. This includes species of birds that constitute bird-strike hazards, season or time periods when problem exists for each species, and factors attracting birds to the area.

b. To minimize the birdstrike hazard by altering the habitat. This includes reduction of the food supply, roosting and nesting areas, and water sources. Areas of operations are Laughlin Air Force Base, Eagle Pass Auxiliary and adjacent private lands. It is recognized that the Air Force has no control over off-base lands under present law and must depend upon the cooperation of private landowners.

3. EXECUTION:

a. Problem Identification:

(1) Migratory Birds and Time in Area:

Ducks, Coots, Rails -- September thru December (resting)

Ducks, Coots, Rails -- Limited nesting

Robins -- December thru March

Cedar Waxwings -- December thru March

Hummingbirds -- April thru September

Scissortails -- April thru September

Blue Martins -- March thru August

Bank Swallows -- April thru August

Barn Swallows -- April thru August

Whitewing Doves -- March thru November

Inca Doves -- April thru September

Orioles -- April thru September

(2) Non-Migratory Birds:

Buzzards

Hawks

Grackles

Crows/Ravens

Doves

Meadowlarks

Egrets

Bats

(3) Severity of Problem: See Appendix 1

(4) On-Base Attractants:

(a) Food source which includes weed and grass seeds, insects, rodents and carrion.

(b) Roosting sites which includes trees, brush, structures and small bodies of water.

(c) Nesting sites which includes trees, structures, and brush areas.

(d) Water sources which includes natural depressions and man-made pits.

(5) Off-Base Attractants: All of the on-base attractants, plus commercial farming, natural streams, stock tanks and cattle feed lots.

b. Base Civil Engineering will:

(1) Inspect airfield weekly. Airfield is divided into nine zones to provide for more accurate inspection and control.

Inspections will determine the type and quantity of food sources present and if remedial action is required, will initiate appropriate action. Type and number of birds within the airfield will be identified.

(2) Respond to notification from other organizations of large bird concentrations or insect infestation in the airfield area by making an immediate inspection of the area and initiating remedial action as required.

(3) Maintain proper mowing heights to produce weed-free grass. Mowing will be in accordance with AFM 85-6/ATC Sup 1.

(4) Determine which trees and brush may be acceptably removed to reduce roosting and nesting sites. Remove identified brush and trees.

(5) Reduce sources of water by draining standing bodies of water that are not essential, grading, filling in low areas that temporarily hold water, and ensuring that new water sources are not created by either contract or in-service operations.

(6) Contact owners of adjacent private property through the U.S. Fish and Wildlife Service requesting their cooperation in control of the surrounding habitat.

(7) Coordinate all bird control measures other than simple habitat alterations with the U.S. Fish and Wildlife Service as/ when such measures become necessary.

4. ADMINISTRATION AND LOGISTICS: See Basic Plan

5. COMMAND AND CONTROL: See Basic Plan

JAMES L. GATES, Major, USAF
Base Civil Engineer

APPENDIX
1 - Statistics of Birdstrike Problem

23 April 1976
ORIGINAL

LAFB PLAN 706
ANNEX O, CIVIL ENGINEERING

STATISTICS OF BIRD STRIKE PLAN - 1975

MONTH	TOTAL	LOCATION				ALTITUDE				SPECIES							AIRCRAFT		PHASE OF FLIGHT			DAMAGE			TIME	
		POORBOY	DEF	AREA	UNK	0 - 100	100-500	500-1500	UNK	UNKNOWN SMALL	UNK	MEADOW-LARK	SWALLOW	BAT	HAWK	BUZZARD	T - 37	T- 38	T/O	LDG	CRUISE	NONE	MINOR	SUBST	DAY	NIGHT
JAN	1		1			1				1							1		1			1			1	
FEB	0																									
MAR	2		2			1	1			2							1	1	2			2			2	
APR	0																									
MAY	3		3			1		2		3							1	2	1	2		3			3	
JUN	4		3		1	3			1	2					2		1	3		3	1	2	2		2	2
JUL	4		3		1	2	1		1	2		1			1		1	3	4			2	1	1	3	1
AUG	0																									
SEP	2		2			1			1	2							1	1	1		1		1	1	1	1
OCT	1		1					1								1		1		1			1		1	
NOV	0																									
DEC	0																									
TOTAL	17		15		2	9	2	3	3	12		1			3	1	6	11	9	6	2	10	5	2	13	4

HEADQUARTERS 47TH FLYING TRAINING WING
Laughlin Air Force Base, Texas

ANNEX Z
DISTRIBUTION

HQ ATC	NO COPIES
XPXX	1
DO	1
DE	1
IGY	1
LAUGHLIN AFB	
CC (DOC)	1
AB	1
DO	1
DOO	1
DOOB	1
DOT	2
DOV	1
DOF	2
SE	2
DE	2
CS-XRP	1
CS-FFO	2
MA	1
MAM	1
XP	1
STOCK	10

Distributed 3/27/76
GO

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 47TH FLYING TRAINING WING (ATC)
LAUGHLIN AIR FORCE BASE, TEXAS 78840

REPLY TO ATTN OF: XP

4 February 1977

SUBJECT: Change 2 to Laughlin AFB Birdstrike Hazard Plan 706

TO: See Attached Distribution List.

1. LAFB Plan 706, Birdstrike hazard, dated 23 April 1976, is changed as follows:

a. Pen and Ink changes:

(1) Page IV, Table of contents, Annex O, Appendix 1, Change "1975" to "1976".

(2) Page 3, para 2b(2)(d), line 2, Change "ATCR 127-8" to "ATCR 127-13".

(3) Page C-2, para 2b(1)(a), line 1, Change "20" to "14".

b. Remove and insert the following pages:

REMOVE	INSERT
0-1-1, 0-1-2	0-1-1

2. After posting this change, enter on Record of Changes and/or Corrections Page, and file this letter immediately behind the front cover.

FOR THE COMMANDER

RICHARD J. ADAMS, Lt Colonel, USAF
Chief, Plans Division

2 Atch
1. Distribution List
2. Page changes

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

DISTRIBUTION

HQ ATC	NO COPIES
XPXX	1
DO	1
DE	1
IGY	1
LAUGHLIN AFB	
47 FTW/CC	1
DO	1
DOO	1
DOOB	1
86 FTS/CC	2
DOV	1
85 FTS/CC	2
SE	2
47 CES/CC	2
2108CS/XRP	1
2108CS/FFAV	2
MA	1
XP	1
STOCK	10

STATISTICS OF BIRD STRIKE PROGRAM

1976

																										DAY	NIGHT
		PTARMIGAN	DLF	AREA	UNK	0-100	100-500	500-1500	UNK	UNKNOWN SMALL	UNK	MEADOW-LARK	SWALLOW	BAT	HAWK	BUZZARD	T-37	T-38	T/O	LDG	CRUISE	NONE	MINOR	SUBST		
JAN	0																										
FEB	0																										
MAR	1		1				1						1					1	1			1			1		
APR	3		3			1		2		2			1	1			1	2		1	2	2	1		1	2	
MAY	5	1	3		K F	3		2		2			2			1	1	4	2	3		4	1		2	3	
JUN	1		1			1					1							1	1					1	1		
JUL	0																										
AUG	3		2		1	1	1		1		2					1		3	1	1	UNK	3			3		
SEP	1	1							1	1							1				1	1			1		
OCT	6	1	3		S	4	2			3	1		2		1		3	3	3	3		4	1	1	5	1	
NOV	3					2	1			3							2	1		3		2		1	3		
DEC	0																										
TOTAL	23	3	16	0	4	12	5	4	2	11	4	0	4	1	1	2	8	15	8	11	4	17	3	3	17	6	

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 47TH FLYING TRAINING WING (ATC)
LAUGHLIN AIR FORCE BASE, TEXAS 78840

REPLY TO ATTN OF: XP

29 April 1976

SUBJECT: Change 1, Laughlin AFB Birdstrike Hazard Plan 706

TO: See Attached Distribution List

1. LAFB Plan 706, Birdstrike Hazard, dated 23 April 1976, is changed as follows:

a. Remove and insert the following pages:

Remove	Insert
0-1-1	0-1-1
	0-1-2

2. After posting this change, enter on Record of Changes and/or Corrections page, and file this letter and the Distribution List immediately following the front cover.

FOR THE COMMANDER

ROBERT M. GIRARD, Major, USAF
Chief, Plans Division

2 Atch
1. Distribution List
2. Page changes

DISTRIBUTION

HQ ATC	NO COPIES
XPXX	1
DO	1
DE	1
IGY	1
LAUGHLIN AFB	
CC (DOC)	1
AB	1
DO	1
DOO	1
DOOB	1
DOT	2
DOV	1
DOF	2
SE	2
DE	2
CS-XRP	1
CS-FFO	2
MA	1
MAM	1
XP	1
STOCK	10

ATCH 1

STATISTICS OF BIRD STRIKE PROGRAM - 1974

MONTH	TOTAL	LOCATION				ALTITUDE				SPECIES							AIRCRAFT		PHASE OF FLIGHT			DAMAGE			TIME	
		POORBOY	DLF	AREA	UNK	0-100	100-500	500-1500	UNK	UNKNOWN SMALL	UNK	MEADOW-LARK	SWALLOW	BAT	HAWK	BUZZARD	T-37	T-38	T/O	LDG	CRUISE	NONE	MINOR	SUBST	DAY	NIGHT
JAN	0																									
FEB	1		1			1					1							1	1				1			1
MAR	2		2			1	1				2						1	1	1	1		1	1		2	
APR	3		3			2	1				3							3	1	2		3			2	1
MAY	3		3					3			3						2	1		3		3			2	1
JUN	0																									
JUL	2		2					2			2						1	1		1	1	1	1		2	
AUG	7		5		2	3	2		2	2	4				1		1	6	1	4	2	7			5	2
SEP	3		3			2		1			3						1	2	2	1		2		1	3	
OCT	7		7			1		6		5			2				5	2	2	4	1	6		1	3	4
NOV	5		4		1	2	1	2		3	1			1			1	4	3	2		3	1	1	4	1
DEC	3		3			1		2		1	1	1					2	1		3		3			3	
TOTAL	36		33		3	13	5	16	2	11	20	1	2	1	1		14	22	11	21	4	29	4	3	26	10

STATISTICS OF BIRD STRIKE PLAN - 1975

MONTH	TOTAL	LOCATION				ALTITUDE				SPECIES							AIRCRAFT		PHASE OF FLIGHT			DAMAGE			TIME	
		POORBOY	DEF	AREA	UNK	0 - 100	100-500	500-1500	UNK	UNKNOWN SMALL	UNK	MEADOW-LARK	SWALLOW	BAT	HAWK	BUZZARD	T - 37	T- 38	T/O	LDG	CRUISE	NONE	MINOR	SUBST	DAY	NIGHT
JAN	1		1			1				1							1		1			1			1	
FEB	0																									
MAR	2		2			1	1			2							1	1	2			2			2	
APR	0																									
MAY	3		3			1		2		3							1	2	1	2		3			3	
JUN	4		3		1	3			1	2					2		1	3		3	1	2	2		2	2
JUL	4		3		1	2	1		1	2		1			1		1	3	4			2	1	1	3	1
AUG	0																									
SEP	2		2			1			1	2							1	1	1		1		1	1	1	1
OCT	1		1					1								1		1		1			1		1	
NOV	0																									
DEC	0																									
TOTAL	17		15		2	9	2	3	3	12		1			3	1	6	11	9	6	2	10	5	2	13	4

Fill Refuse Cov.

APPENDIX E

[illegible]

[illegible]
[illegible] Texas 7[illegible]
[illegible]

[illegible] D.

[illegible]ember 10, 1977

[illegible]-Smith
[illegible]ration, Inc.
[illegible]. Box [illegible]03
[illegible]sco, Texas 79988

[illegible] Solid Waste-Taylor County
[illegible] Sanitation, Inc.-Permit Application #2
West end of Dyess Air Force Base
Coordinates: N 32° 26.50' W 99° 51.25'

[illegible] Mr. Smith:

On October 25, 1977, Mr. Charles LaSalle, Engineering Assistant, from our regional office, and Mr. Tom Rogers, P.E., from the Abilene-Taylor County Health Department, inspected the municipal solid waste disposal facility serving Dyess Air Force Base. During this inspection, our representative was accompanied by Mr. [illegible], the Operator, and the results were discussed with Mr. Bill Cope, Landfill Superintendent.

Our inspection report reveals the following conditions of noncompliance as keyed to this Department's "Municipal Solid Waste Management Regulations", dated April, 1977, a copy of which is enclosed:

1. Surface drainage not properly controlled. (F-2.4)
2. Improper earth covering procedures. (F-2.13) (Refuse protruding through cover in completed area of site.)

In order for this municipal solid waste site to become compliant, the following corrective action must be taken:

1. Suitable water diversion methods must be provided to divert the flow of [illegible]-contaminated runoff or other surface water away from the active disposal area to minimize contact between the water and solid waste.

2. A Type I operation with daily compaction and covering of all deposited solid [illegible] with at least six inches of compacted earth must be provided, so that no refuse is protruding through the cover. A final cover of two feet of compacted earth must be placed over the entire surface of each completed portion of the disposal area. The final cover must be compacted and graded to drain to prevent the ponding of water on the landfill surface and to prevent erosion.

...ed during the inspection, that birds were present on the site and being attracted to the completed area where refuse was protruding through the cover. Since the landfill is adjacent to the runway area at Dyess Air Force Base, the presence of birds is critical in nature and the elimination of sources which attract birds must be given special attention.

...have any questions concerning solid waste management, or if we can be of any assistance, please do not hesitate to contact us here in Austin or Mr. Stanley W. Thompson, P.E., Regional Director of Environmental and Consumer Health Protection, located at Second Floor-Old County Courthouse, Abilene, Texas, 79602; telephone number (915) 673-5231.

Sincerely yours,

Lester L. Dunkelberg

...h C. Carmichael, P.E., Director
...ision of Solid Waste Management

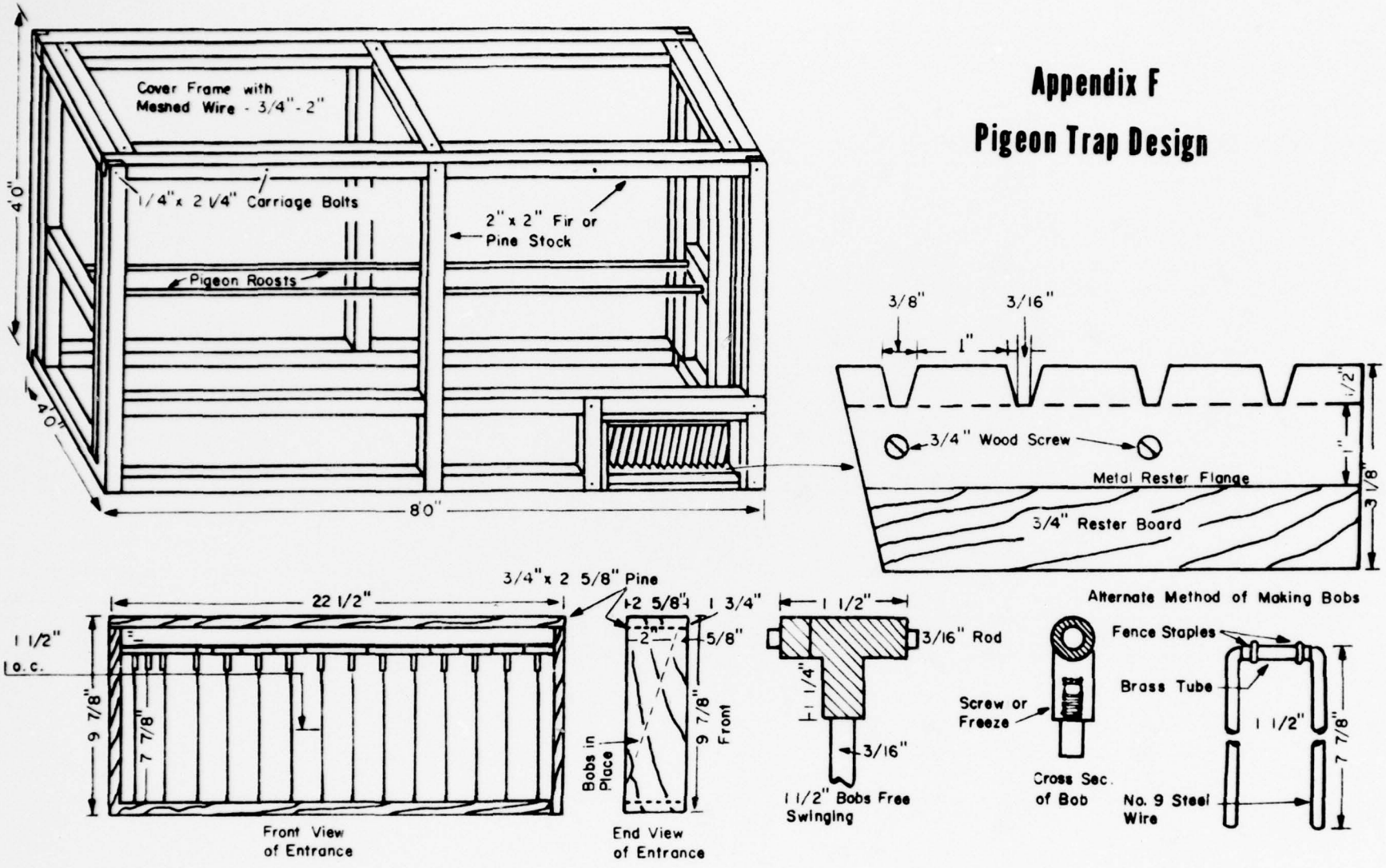
CL/jg

Enclosure: "Municipal Solid Waste Management Regulations", dated April, 1977

cc: Honorable Roy Skaggs, County Judge
Abilene-Taylor County Health Department
Public Health Region 4, TDH
96th CSG/DEE, Attention: Mr. Floyd Ball, Dyess AFB, Texas, 79607

Appendix F

Pigeon Trap Design



DYESS AFB

DISTRIBUTION LIST

HQ USAF/X00 Wash DC 20330	1	USAF RGN CIV ENGRG 1114 Commerce Dallas TX 75202	1
HQ USAF/LEEV Wash DC 20330	8	USAF RGN CIV ENGRG 526 Title Bldg Atlanta GA 30303	1
HQ USAF/ISC Wash DC 20330	1	OEHL/CC Brooks AFB TX 78235	1
AFISC/IGD Norton AFB CA 92409	1	1 CSG/OTM Attn: MSgt Godsey Langley AFB VA 23665	1
AFISC/SEFF Norton AFB CA 92409	1	SAMSO/DEV Attn: Maj Wooten PO Box 92960 Worldway Postal System Los Angeles CA 90009	1
DDC/TCA Cameron Station Alexandria VA 22314	12	AFESC/PRT Tyndall AFB FL 32403	1
HQ MAC/DEMM Scott AFB IL 62225	2	AFESC/DEV Tyndall AFB FL 32403	15
HQ AFESA/CS Kelly AFB TX 78241	1	AFESC/OI Tyndall AFB FL 32403	1
3700 Tech Tng Wng TTGIC/48 (Entomology) Sheppard AFB TX 76311	1	AFESC/DEVN Attn: Lt Kent Tyndall AFB FL 32403	1
Federal Aviation Administration MAS/720 Attn: Capt Harrison 800 Independence Ave Wash DC 20591	2	AFESC/DEVN (Official Record Only) Tyndall AFB FL 32403	1
AFPCB/MEIS Forest Glen Section WRAMC Wash DC 20012	1	96 CSG Dyess AFB TX 79607	3
USAF RGN CIV ENGRG 630 Samsone St San Francisco CA 94111	1	96 BMW Dyess AFB TX 79607	2

917 FR EFS Dyess AFB TX 79607	1
463 SEG Dyess AFB TX 79607	1
96 DO Dyess AFB TX 79607	1
96 CES Dyess AFB TX 79607	2
96 CSG Dyess AFB TX 79607	2
1 MAPS/TROS Attn: CMS Tattum Dyess AFB TX 79607	1